US LHC ACCELERATOR PROJECT

brookhaven - ***fermilab*** - *berkeley*

EDR – Inner Triplet Interconnects

Electrical Connections and Routing

Rodger Bossert

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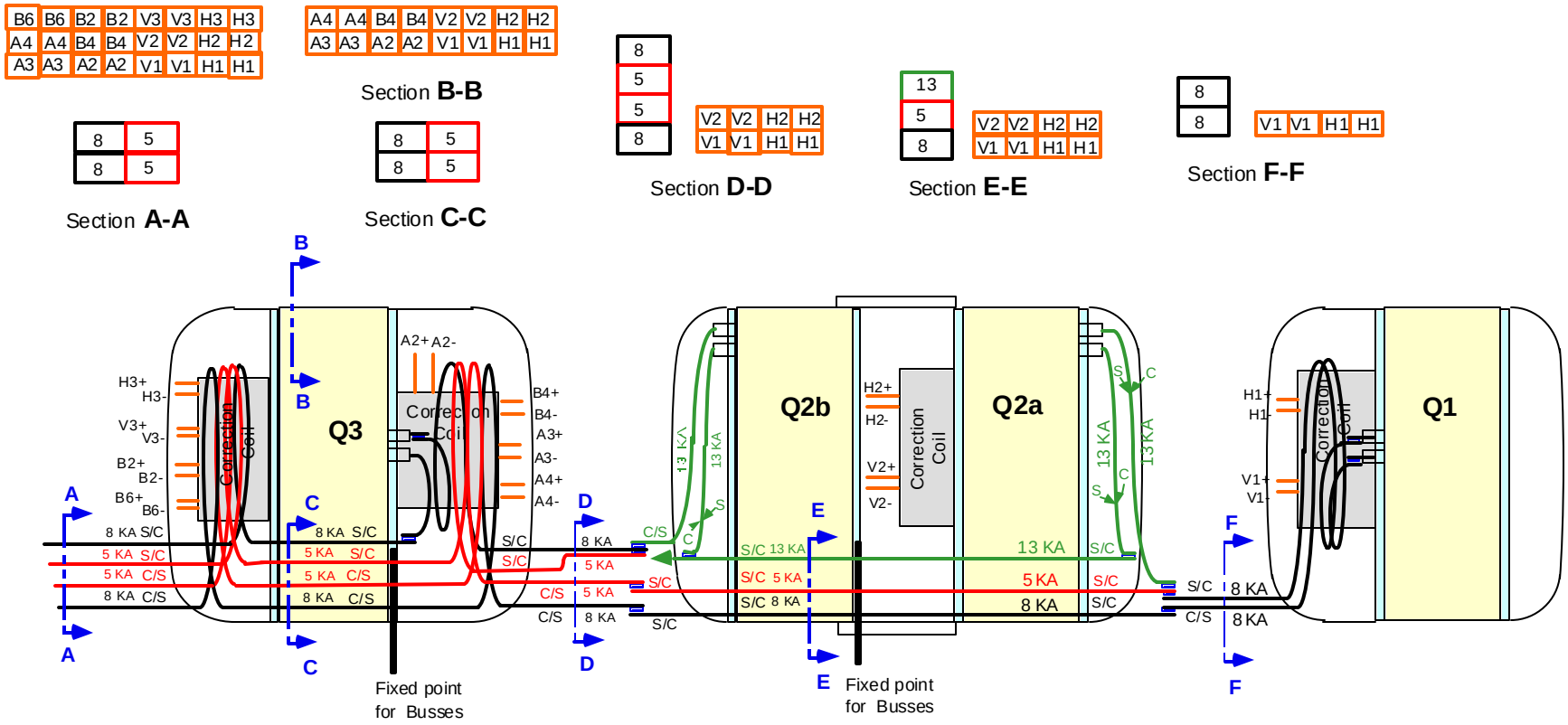
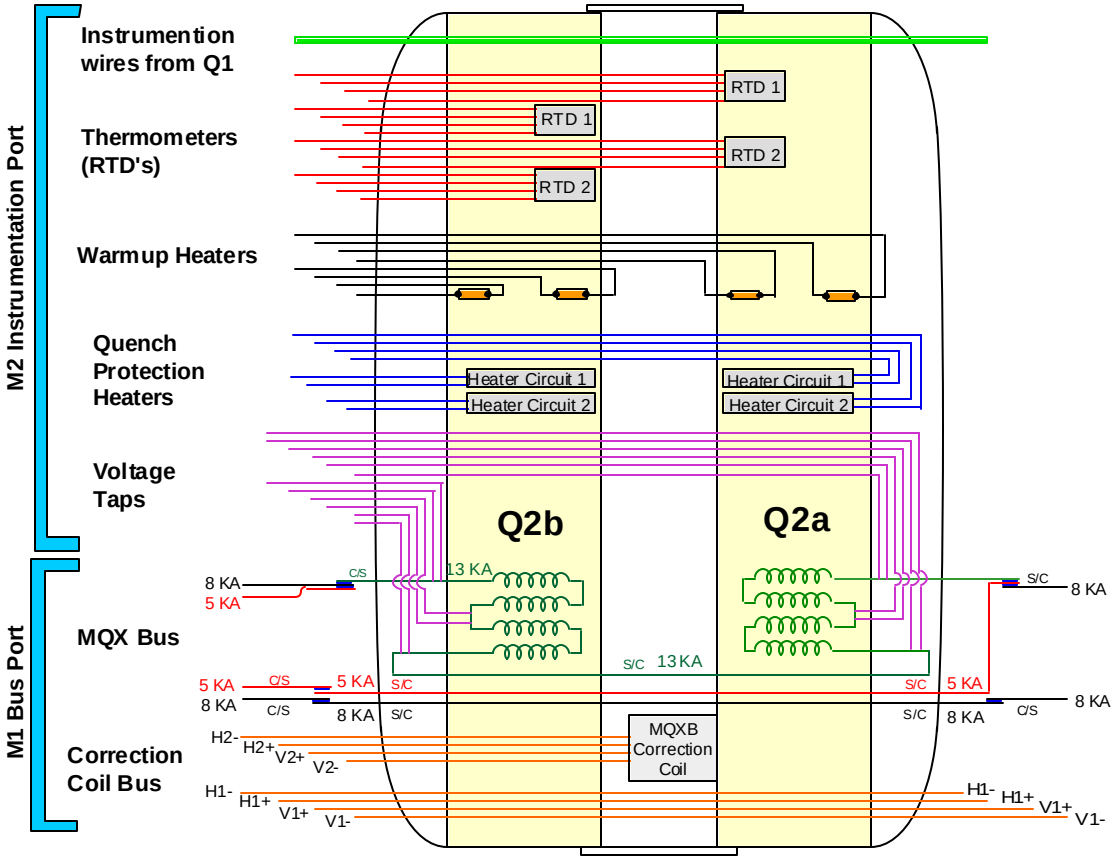
- Inner Triplet Bus & Instrumentation wiring Layouts
- Q2 Bus Assemblies
- Splices
- Spider
- Instrumentation
- Q3 Bus Assembly and Expansion Loop
- DFBX Interface
- Design and Parts Status Summary

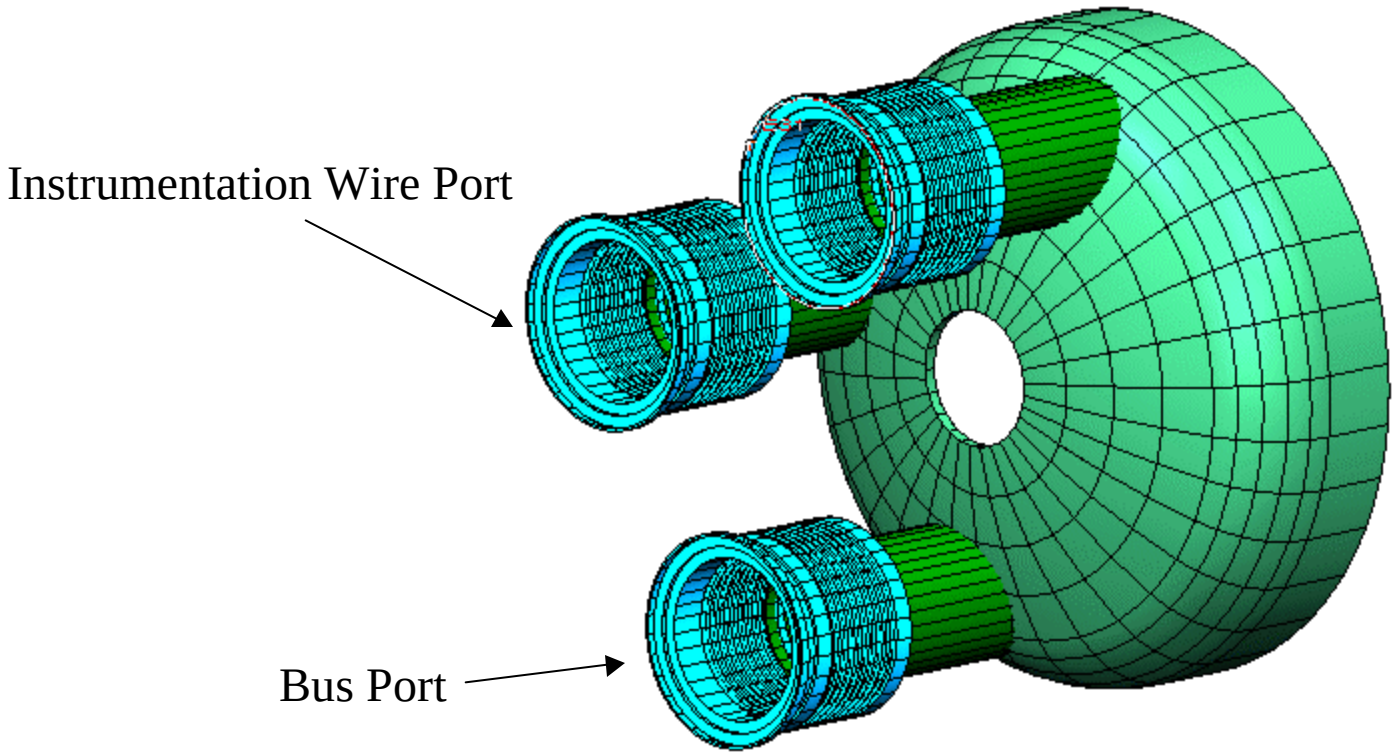
Inner Triplet Bus and Expansion Loop Layout



Q2 Electrical and Instrumentation Wires



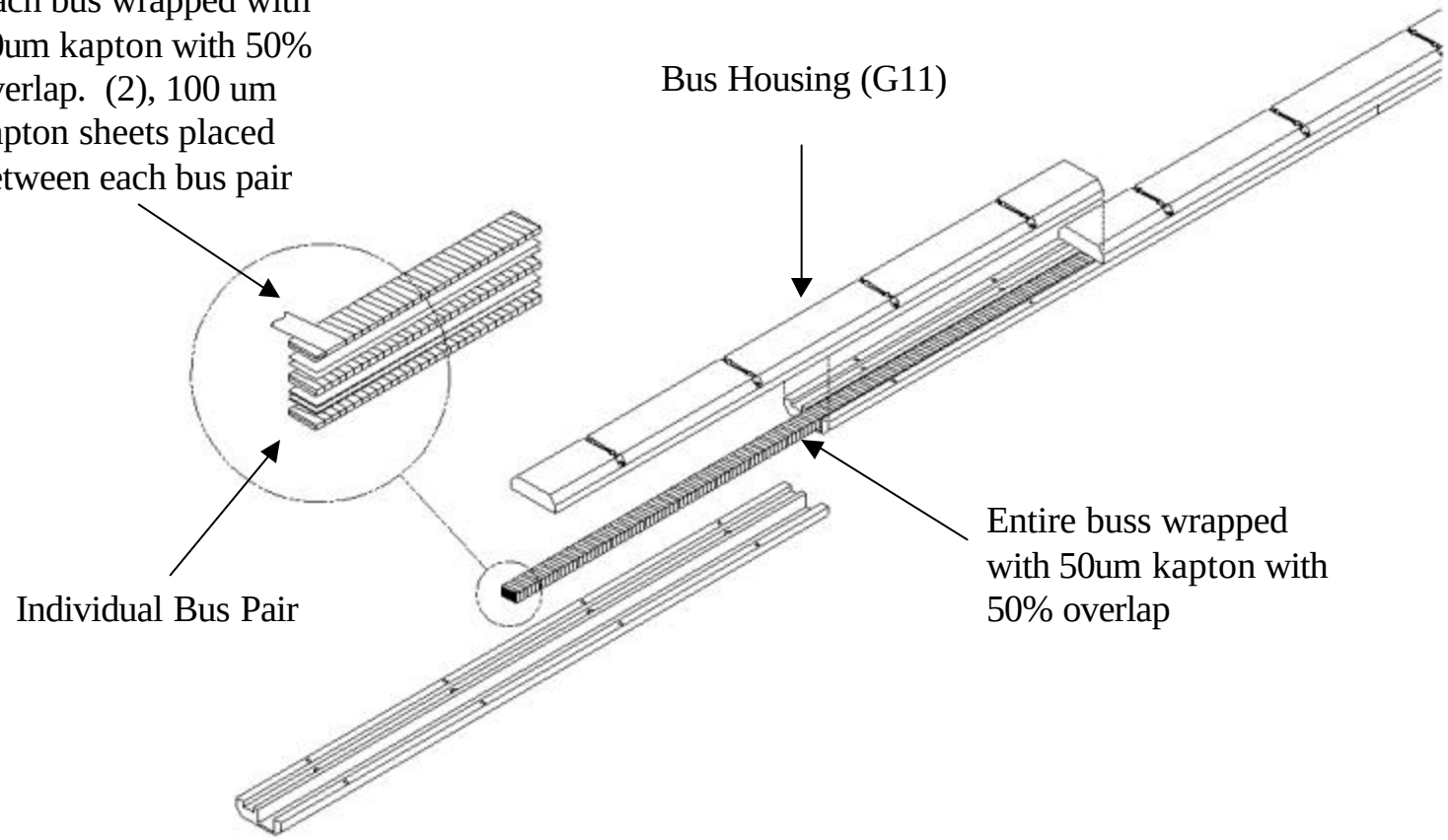
Bus and Instrumentation Wire Ports in End Dome



Q2 Bus Assembly with Housing

Each bus wrapped with 50um kapton with 50% overlap. (2), 100 um kapton sheets placed between each bus pair

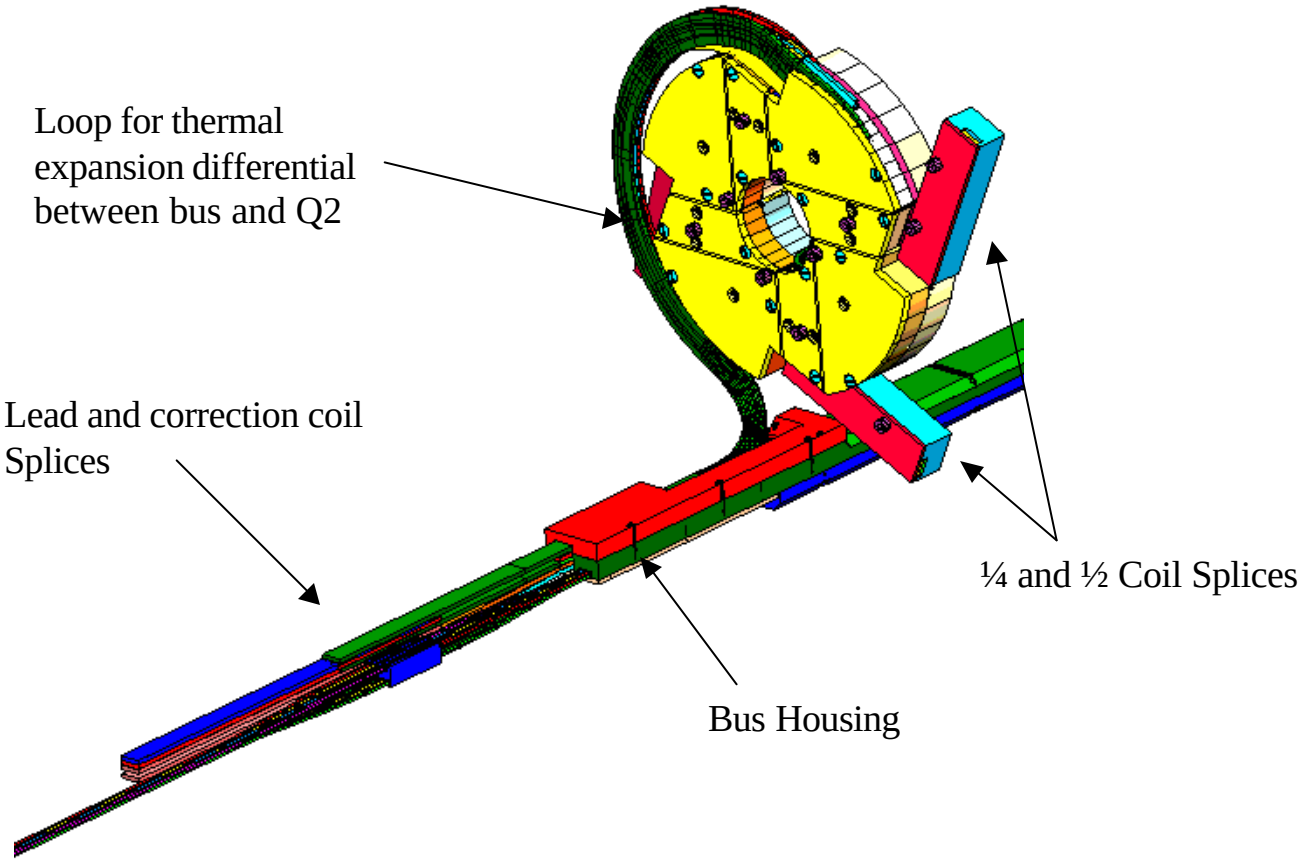
Bus Housing (G11)



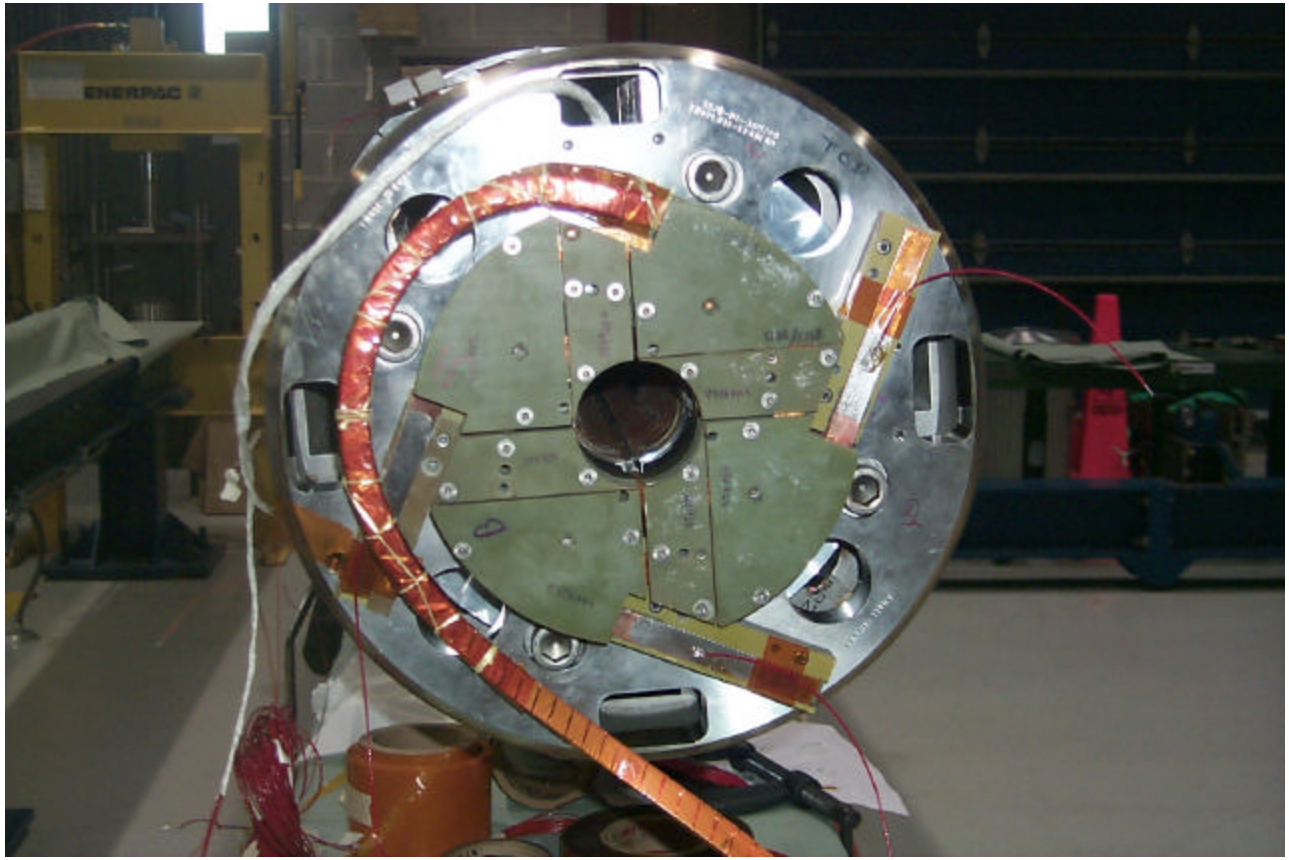
Individual Bus Pair

Entire buss wrapped with 50um kapton with 50% overlap

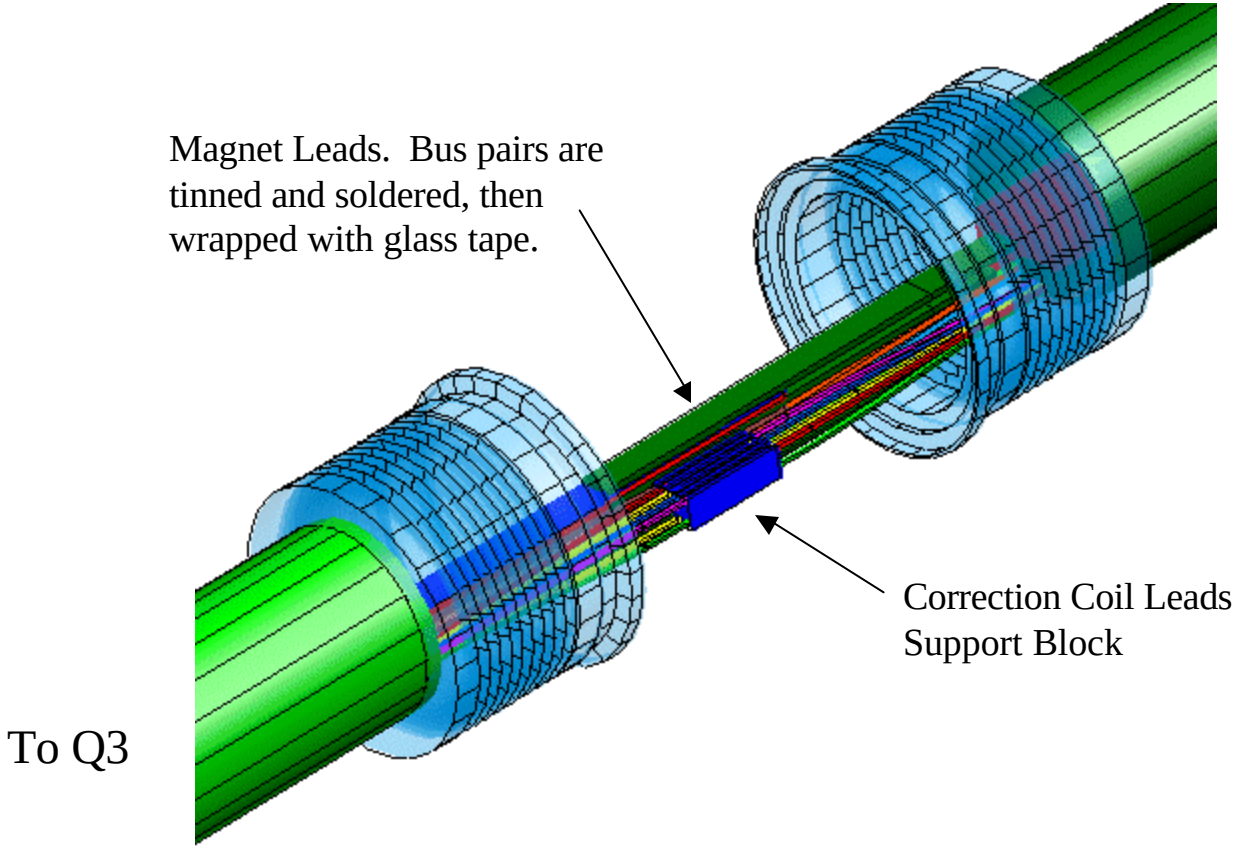
Lead End of Q2 with Splices



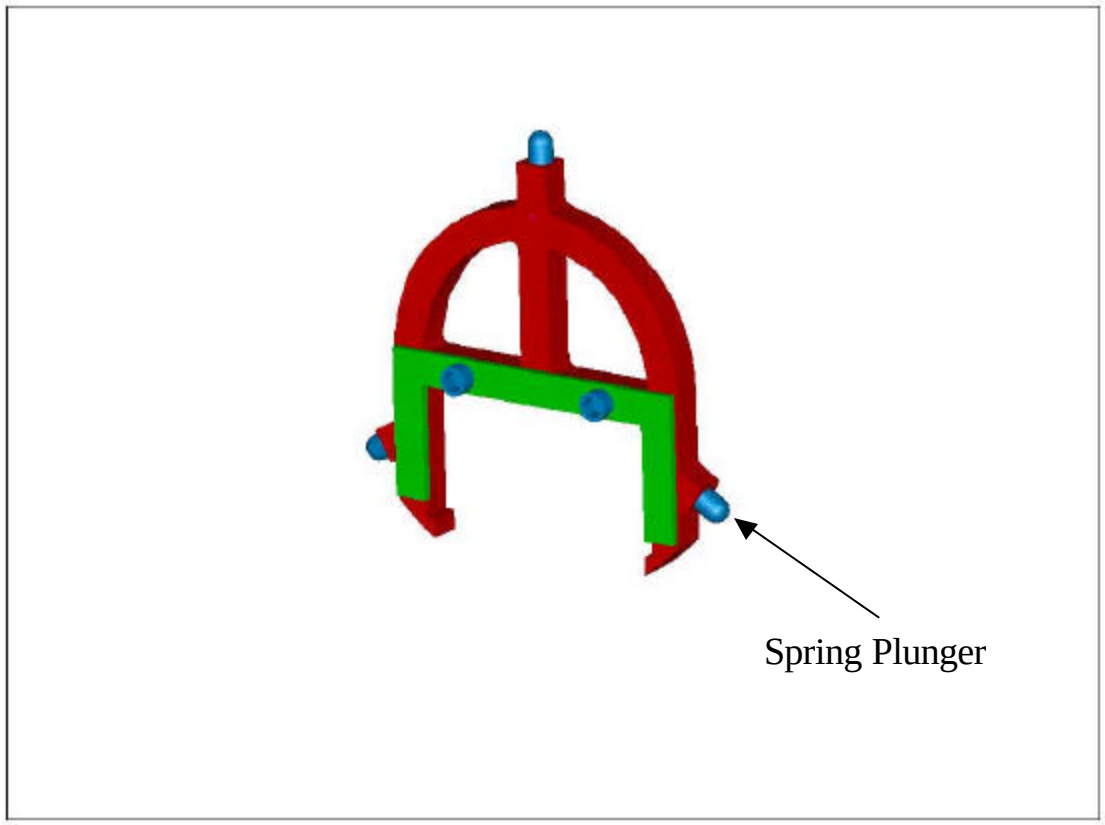
Picture of End of MQXB01



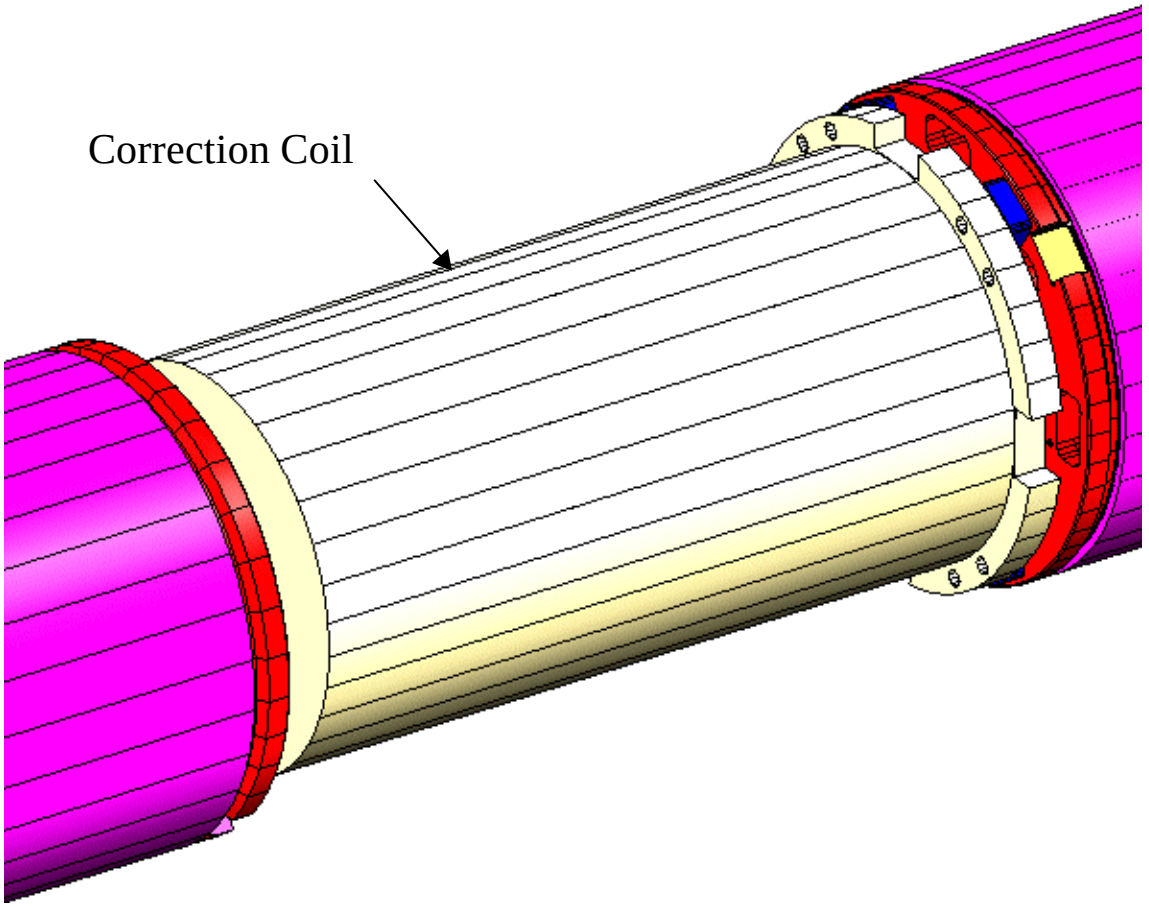
Q2/Q3 Lead and Correction Coil Splice



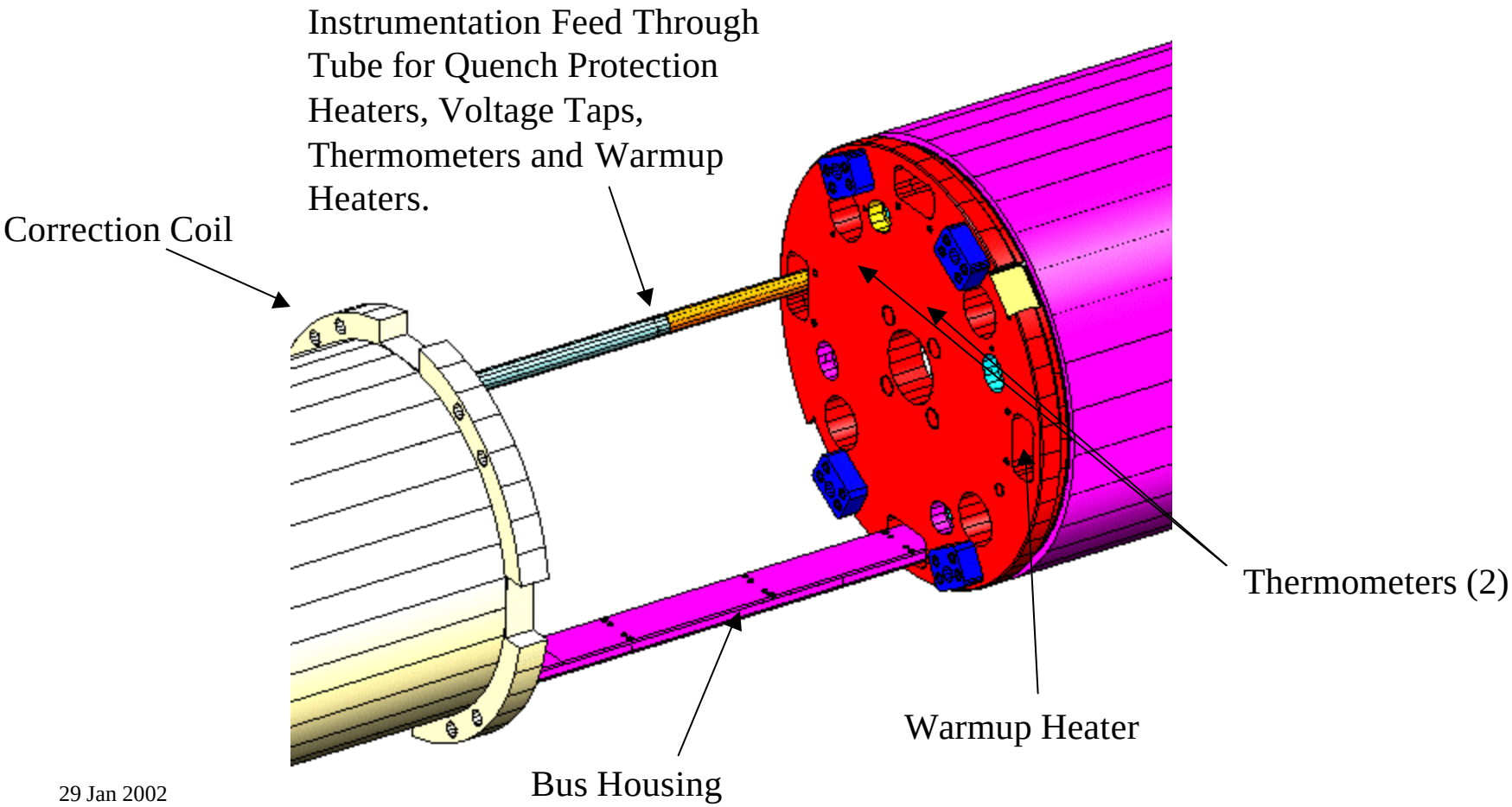
Spider Assembly



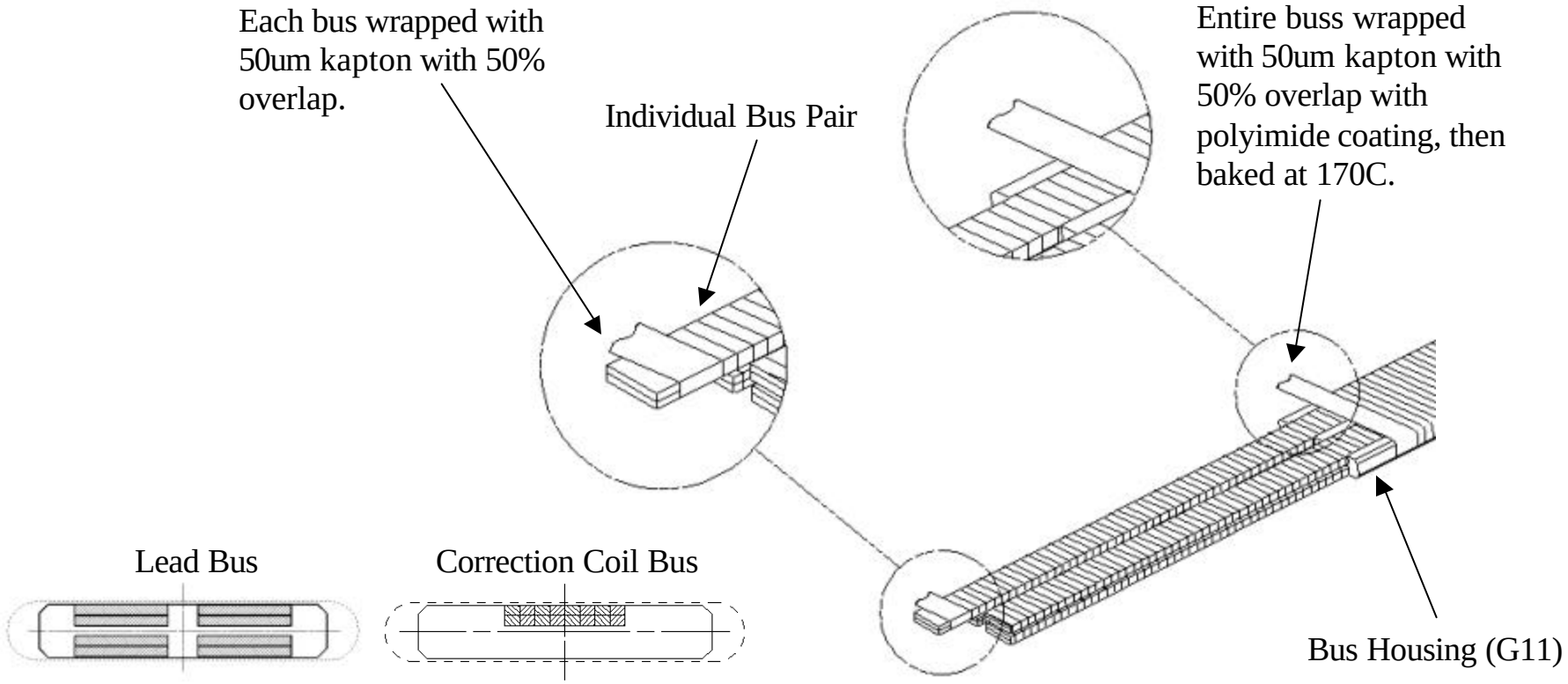
Q2 Transition Area



Instrumentation Wires

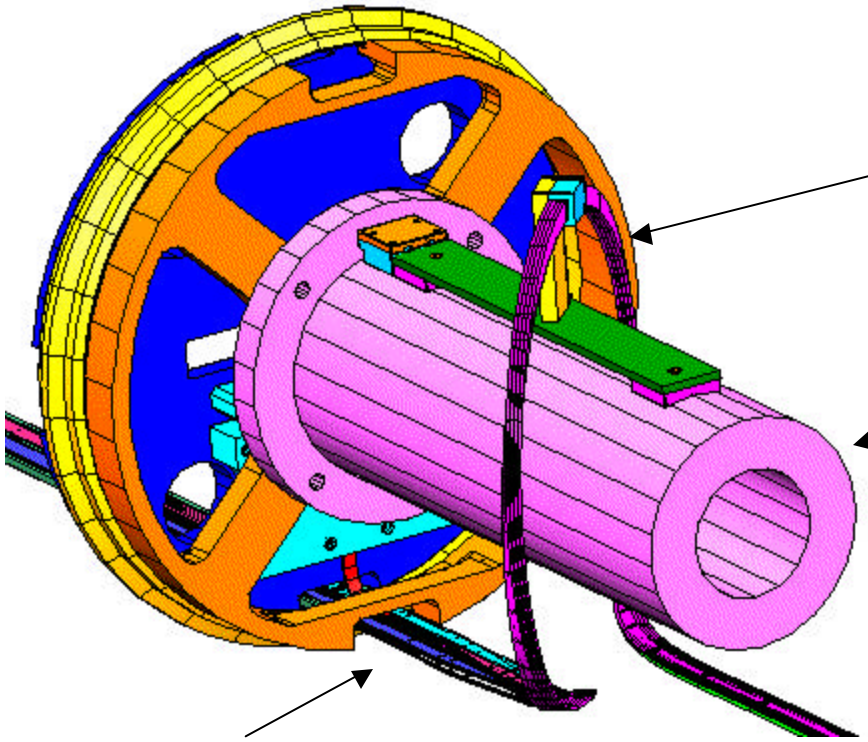


Q3 Bus Assembly with Housing



Cross-section Views

Q3 Expansion Loop



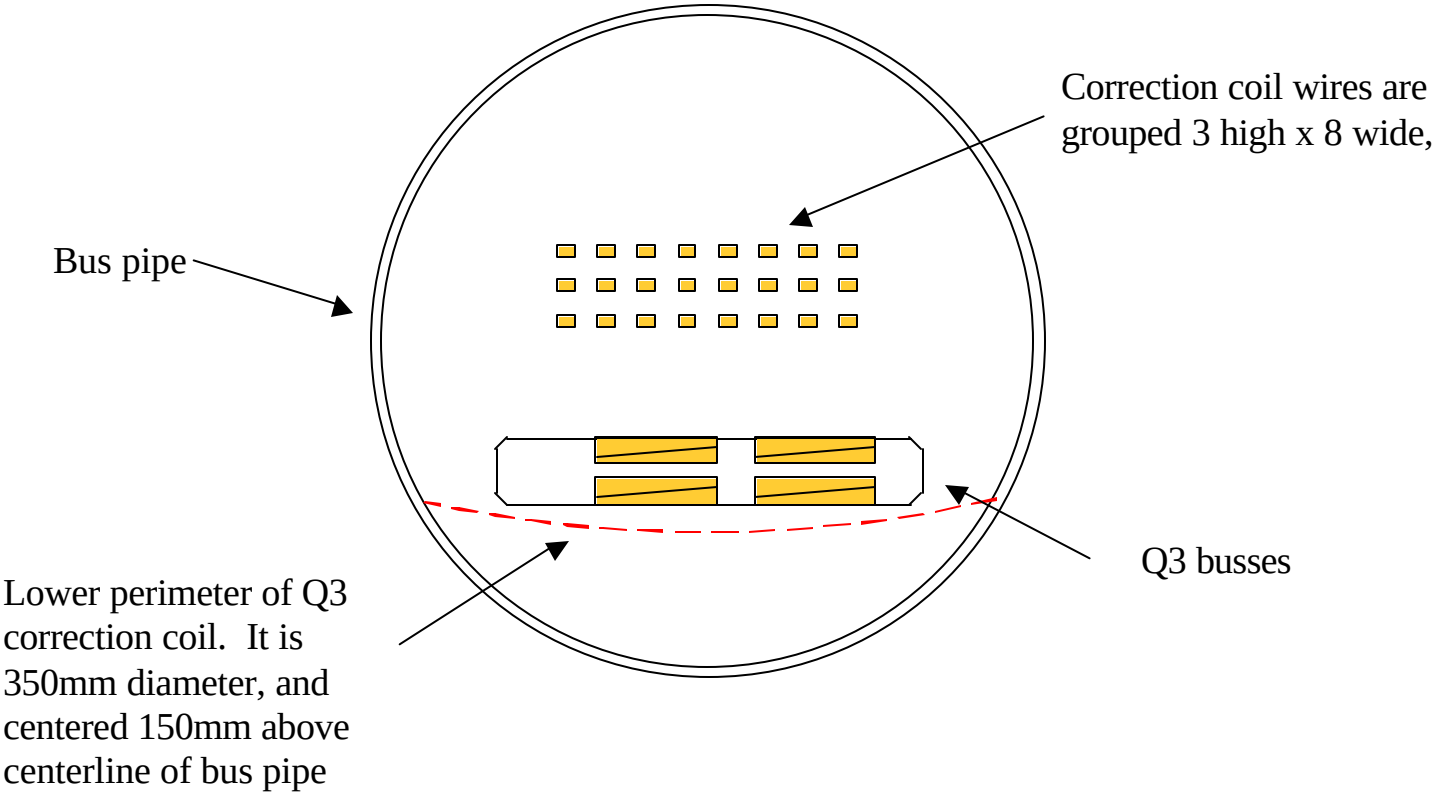
Expansion loop configuration will be essentially the same in all three locations.

Correction Coil

Cable and correction coil bus from Q2

Q3 leads spliced to bus

Q3-DFBX Interface



Design Status for Bus and Interconnection Area

Q1-to-Q1/Q2 interface

? Configuration of expansion loop designed and built on mockup. Details of expansion loop support still need be worked out. General layout of configuration exists, but detail drawings still need to be made.

Q1/Q2-to-Q2/Q3 interface

? All parts needed for the first Q2 assembly designed, detailed and ordered. Prototype "Spider" for interconnection kit sent to be sent to CERN has been completed. Need to order production quantities.

Q2/Q3-to-DFBX interface.

? Bus and bus housing configuration designed. Details in process.

? Configuration of expansion loops designed and built on mockup. Details of expansion loop supports still need be worked out.

? Configuration of bus and correction coils wires as they enter DFBX is determined. Specific details of the support of the bus in this area still need to be worked out.

Parts Status for Bus and Interconnection Areas

Parts being supplied by CERN:

? Correction coils. MCBX for Q1, MCBX for Q2 and MCBXA and MQSXA for Q3. The first MCBX for Q2 has arrived.

? Thermometers (RTD's) Enough for first Q2 have arrived.

? Instrumentation wires for voltage taps, Warmup heaters, Thermometers and Quench Protection Heaters.

? Correction coil bus wire. Enough for the first Q2 has arrived.

All other parts are designed and procured by FNAL.

? All parts needed for the first Q2 assembly are ordered. Most have been received and are in stock. The rest will be at FNAL in time to assemble the first Q2. Parts for the first Q2 necessary from CERN, including correction coil, are at Fermilab. Parts for the rest of the Q2's will be ordered after the first one is successfully completed.

? Material (superconducting cable and copper-only stabilizer) for lead busses for Q1's and Q3's is at FNAL. Prototype spiders have been received. All other parts still need to be ordered.